

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF CLAIMS:

Claims 1-11 : (Canceled)

Claim 12 : (New) An optical cross-connect, comprising:

- a) a first plurality of input channels for through data traffic;
- b) a second plurality of output channels for the through data traffic;
- c) a plurality of first optical switching matrices comprising a first group of input ports which are connected to the input channels of the cross-connect, and a first group of output ports which are connected to the output channels of the cross-connect, for interconnecting the input channels and the output channels;
- d) a group of one or more signal shaping units formed as wavelength converters;
- e) means for connecting a second group of output ports of the first optical switching matrices to a respective input of a signal shaping unit of the group, and means for connecting a second group of input ports of the first optical switching matrices with a respective output of one of the signal shaping units;
- f) each of the first switching matrices being operative for switching communication signals at a same wavelength assigned to the first switching matrices; and
- g) the connecting means being operative for connecting an input and an output of one of the wavelength converters with different ones of the first switching matrices.

Claim 13 : (New) The optical cross-connect of claim 12, in that the connecting means comprises wired lines between the output or the input of one of the signal shaping units, and the input port or the output port, respectively, of the first switching matrices.

Claim 14 : (New) The optical cross-connect of claim 12, in that the connecting means comprises switching elements for selectively connecting the output or the input of one of the signal shaping units to one of several of the input ports or output ports, respectively, of the first switching matrices.

Claim 15 : (New) The optical cross-connect of claim 12, in that each signal shaping unit is operative for shaping an individual communication signal.

Claim 16 : (New) The optical cross-connect of claim 12, in that the connecting means comprises at least one second switching matrix with selectively connects a second group of output ports of the first switching matrices to said one wavelength converter.

Claim 17 : (New) The optical cross-connect of claim 16, in that the connecting means comprises at least a third switching matrix which selectively connects the wavelength converters to one of a second group of input ports of the first switching matrices.

Claim 18 : (New) The optical cross-connect of claim 12, in that each input channel is connected to the first switching matrices via a wavelength demultiplexer and/or the first switching matrices are connected to each output channel via a wavelength multiplexer.

Claim 19 : (New) The optical cross-connect of claim 12, and comprising inputs and/or outputs for branching the through data traffic, and means for connecting these inputs or outputs to a second group of input or output ports of the first switching matrices.

Claim 20 : (New) The optical cross-connect of claim 12, in that each wavelength converter has a wavelength-tuneable transmitter part.

Claim 21 : (New) The optical cross-connect of claim 12, in that the first group of input ports are connected to the input channels and/or the first group of output ports are connected to the output channels, respectively, without a switching matrix being inserted in between.

Claim 22 : (New) A method of switching a communication signal in an optical cross-connect having a plurality of switching matrices connected in parallel between a plurality of input channels and a plurality of output channels, each of the switching matrices being operative for switching communication signals of a same wavelength assigned to it, the method comprising the steps of:

- a) receiving the communication signal by one of the input channels of the cross-connect;
- b) assigning one of the output channels of the cross-connect to the communication signal;
- c) deciding whether a wavelength conversion of the communication signal has to be carried out;
- d) inputting the communication signal into the switching matrix assigned to its wavelength;
- e) if a wavelength conversion was found necessary in step c):
 - i) outputting the communication signal at an output port of the switching matrix which is connected to a wavelength converter,
 - ii) carrying out the wavelength conversion, and
 - iii) inputting the communication signal into another switching matrix from the plurality of parallel switching matrices to which a converted wavelength of the communication signal is assigned; and

f) outputting the communication signal from the switching matrix to the output channel assigned to it.